

L 05733-57

ACC NR: AP6016931

bi-integral to the approximate calculation of the eigenvalue of the boundary value problem of a homogeneous linear equation is examined. Taking the boundary value problem

$$y^{(n)} + p_1(x) y^{(n-1)} + \dots + [p_n(x) + \lambda] y = 0$$

$$U_l[y(a); y(b)] = 0 \\ l=1, 2, \dots, n,$$

for which application of the bi-integral gives

$$y_l^{(n-1)}(x, \lambda) = \left[\delta_{n,l} \right]_{x_0}^a L(x, \lambda),$$

$$y_l^{(n-2)}(x, \lambda) = \left[\delta_{n,l}, \delta_{n-1,l} \right]_{x_0}^a L(x, \lambda),$$

.....

$$y_l(x, \lambda) = \left[\delta_{1,l}, \delta_{2,l}, \dots, \delta_{n,l} \right]_{x_0}^a L(x, \lambda), \\ l=1, 2, \dots, n.$$

Orig. art. has: 26 formulas.

SUB CODE: 12/ SUBM DATE: 13May65/ ORIG REF: 003

CHEREDNICHENKO, V.P.; DURDYEV, Kh.D.

Morphology of the Kara-Bogaz-Gol Strait. Izv.AN Turk.SSR.Ser.fiz.-
tekh., khim.i geol.nauk no.3:69-73 '61. (MIRA 14:7)
(Kara-Bogaz-Gol Strait--Geology)

PYATNITSKIY, I.V.; DURDYEV, M.

Solubility of the pyridine-thiocyanate complex of cobalt. Ukr.
khim. zhur. 31 no. 12:1247-1253 '65 (MIRA 19:1)

1. Kiyevskiy gosudarstvennyy universitet imeni Shevchenko.
Submitted June 18, 1964.

DUREK, Andrzej

Profitability of exchange and criteria of selection of flame
heating furnaces.. Problemy proj hut maszyn 10 no.12:361-368
D '62.

1. Prozamet, Gliwice.

DUREK, Andrzej; SAPETA, Mieczyslaw

Certain problems concerning the export of machine industry units.
Probl proj hut maszyn 11 no.3:90-94 Mr '63.

1. Prozamet, Gliwice.

DUREK, Andrzej

Mechanized division producing stamped parts. Problemy proj
hut maszyn 12 no.8:236-240 Ag '64.

1. Prozamet, Gliwice.

DUREK, Andrzej

Technological progress in high-pressure tube bending for the needs of power engineering and the chemical industry. Problemy proj hut maszyn 12 no.3:76-79 Mr'64.

1. Prozamet, Gliwice.

DUREK, Andrzej, mgr inż.

Economic and technical analysis of power carriers used for heating
input material in the machine industry. Przegl mech 23 no.16:466-470
25 Ag '64.

1. General designer, Prozamet, Gliwice Branch.

DUREK, Andrzej, mgr inż.

Specialization of technological designing offices. Przegl techn 85
no.18:5 1-3 My '64.

POLAND

DUREK, B., Department of Applied Pharmacy (Zaklad Farmacji Stosowanej), AM [Akademia Medyczna, Medical Academy] in Krakow (Director: Prof. Dr. M. GATTY-KOSTYAL) [Durek, Bozena]

"Lasting Quality of Liquid Nightshade Root Extracts."

Warsaw, Farmacja Polska, Vol 19, No 11-12, 25 Jun 63, pp 233-234

Abstract: Author made a study of 60° and 80° alcohol extracts of nightshade roots, stored in clear glass containers for a period of 5-10 years, using methods prescribed by FP [Farmakopja Polska, Polish Pharmacopeia], with some of the results taken from the work of Z. Kubiak. The results are tabulated, and the author concludes that alcohol extracts, especially in 80° alcohol are of considerable durability. There are eight (8) references: one (1) each French and German, and the others in Polish.

1/1

12

DUREK, S. ; DUREK, A.

Hot-rolling of spur gears. p. 172

PRZEGLAD MECHANICZNY. (Stowarzyszenie Inzynierow i Technikow Mechanikow Polskich)
Warszawa, Poland
Vol. 18, no. 6, Mar. 1959

Monthly List of East European Accession (EEAI) 18, Vol. 8, no. 7, July, 1959

Uncl.

DUREKOVIC, Stjepan

Conflicts between the manufacture and marketing of petroleum products, and ways of their removal. Nafta Jug 14 no.1:25-34 Ja '63.

1. Rafinerija nafte, Sisak.

DUREKOVIC, Stjepan

Disparity between the production and consumption of gasoline and diesel fuel. Nafta Jug 14 no.5/7:177-182 My-Jl '63.

1. Rafinerija nafte, Sisak.

DUREKOVIC, Stjepan

River transportation of petroleum and its products. Nafta
Jug 14, no. 5/7:191-192 My-Jl '63.

TOURAINÉ, A.; DUREL, P.; SIBOULET, A.

On non-gonorrheal urethritis. Przegl. dermat. 48 no.8/10:285-294
'61.

(URETHRITIS)

DUREND, V. F.

"Aerodynamics," State Publishing House for the Defense Industry, Vol 3, 1939

LORENO, P.G.; ZANCHUK, Ya.V.; PELIKIS, V.B.

Synthesis and study of trimethylene triethylene derivatives.
Part 6: Reaction of trimethylene triethylene and its
derivatives with unsaturated compounds. *Chem. org. synth.*
1 no.11:2046-2050 N '65. (MIRA 17:12)

1. Institut organicheskoy khimii AN UkrSSR. Submitted
September 19, 1964.

DUREV, S. A.

Problem of the genesis of natural waters. p 104.

A paper found in the symposium "Works of the Laboratory of Hydrogeological Problems imeni F. P. Savarenskiy", Vol. III (1948), Moscow-Leningrad.

DUREYKO, G.V.

3(4)

PHASE I BOOK EXPLOITATION

SOV/2067

Moscow. Institut inzhenerov geodezii, aerofotos "yemki i kartografi

Trudy, vyp. 28. (Transactions of the Moscow Institute of Geodetic, Aerial Survey and Cartographic Engineers, Nr 28) Moscow, Geodezizdat, 1957. 110 p. 1,400 copies printed.

Ed.: A. I. Mazmishvili; Ed. of Publishing House: T. A. Shamarova;
Tech. Ed.: V. V. Romanova.

PURPOSE: This collection of articles is intended for geodesists, photogrammetrists, and cartographers.

COVERAGE: This issue contains articles on geodetic surveying, photogrammetry, and cartography. The articles devoted to geodetic surveying discuss errors in precise leveling, an engineer level, and the speed of light in a vacuum. In the field of photogrammetry there are articles on camera tilt, the use of photos of two scales in densifying control, and the differential method of aerial triangulation. Two articles in cartography discuss

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Transactions of the Moscow (Cont.)

SOV/2067

Polish school atlases and the history of political administrative maps of the USSR. References accompany individual articles.

TABLE OF CONTENTS:

Torochkov, V. Yu. The Problem of Determining the Tilt Angle of the Optical Axis of an Aerial Camera During Flight 3

Dureyko, G. V. Engineer's Level of the Docent V.A. Belitsyn Design 27

Piskunov, M. Ye. Errors in Precise Leveling Caused by Incorrect Placement (Holding) of Invar Rods 41

Prilepin, M. T. The Most Probable Value of the Speed of Light in Vacuum 53

Fateyev, A. P. The Use of Aerial Photos of Two Scales for Densifying Horizontal and Vertical Control in Large Scale Surveys 61

Card 2/3

Transactions of the Moscow (Cont.)	SOV/2067	
Kirillov, A. M. Polish School Atlases in Geography		71
Fedoruk, G. D. The Differential Method of Aerial Triangulation Considering Side, Base and Azimuth Conditions		77
Bilich, Yu. S. Notes From the History of the Development of Political Administrative Maps of the USSR		105
AVAILABLE: Library of Congress		

MM/dfh
7-16-59

Card 3/3

DURBYKO, G. V.

DURBYKO, G.V., aspirant.

Engineering level designed by V.A. Belitsyn. Trudy MIIGAIK no.28:
27-40 '57. (MIRA 11:1)

1. Kafedra prikladnoy optiki Moskovskogo inatituta inzhenerov geode-
zii, aerofotos"yemki i kartografii.
(Surveying--Instruments)

AUTHOR: Dureyko, G. V., Graduate Student SOV/154-58-4-18/18

TITLE: On the Use of a Novel Instrument in Range Line Observations
(O primeneniі novogo instrumenta pri stvornykh nablyudeniyaх)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"yemka, 1958, Nr 4, pp 163 - 168 (USSR)

ABSTRACT: This paper gives a description of the novel instrument for range line observations which is due to the Soviet optical scientist Docent V.A.Belitsyn (deceased). The instrument was designed with the purpose of eliminating completely the error caused by the inaccurate pitch of the focusing device and of reducing sighting errors to a minimum, at the same time eliminating their dependence upon the distance from the bench mark under observation. In this instrument the cross-hairs (the shift of which in the field of vision is dependent upon pitch irregularities of the focusing device in any section of the guiding cylinder) are replaced by two images, by an erect and an inverted one. Such movable "cross-hairs" automatically correct the error of the focusing device. The advantage offered by this instrument is that it makes use of the

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On the Use of a Novel Instrument in Range Line
Observations

SOV/154-58-4-18/18

double image method. It is capable of taking horizontal and vertical sightings. For a conversion it is only necessary to rotate the telescope through 90°. It appears that the results of measurements made with this instrument ~~coincide~~ much better than those obtained with the optical transit OT-02. There are 7 figures and 4 tables.

ASSOCIATION: Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii (Moscow Institute of Surveying-, Aerial Surveying-, and Cartography Engineers)

Card 2/2

USCOM4-DC-60,564

3(4)

SOV/154-58-6-14/22

AUTHOR:

Dureyko, G. V., Assistant

TITLE:

The Accuracy of Sighting With a Telescope Having a Two-Element
Telephoto Lens (K voprosu o tochnosti vizirovaniya
zritel'nymi trubami s dvukhkomponentnym teleob'yektivom)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i
aerofotos"yemka, 1958, Nr 6, pp 123-127 (USSR)

ABSTRACT:

The accuracy of sighting by means of a telescope with a cross wire is influenced by the thickness of wires. No high-accuracy sighting can be obtained with a cross wire. If there is a bisector, its thickness and the relationship between the dimensions of the target and the bisector exert an influence upon the accuracy of sighting. In telescopes of surveying instruments built according to the scheme of a two-element telephoto lens the variable equivalent focal distance is determined by formula (5). The magnification of these tubes is determined by formula (6). This is only valid for infinitely distant objects. For an approximate calculation of the magnification in sighting at close distances, formula (6') can be used. Formula (7) should be used for an exact determination of the magnification of

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SOV/154-58-6-14/22

The Accuracy of Sighting With a Telescope Having a Two-Element Telephoto Lens

telescopes. The formulae obtained show that in tubes according to Kepler's scheme, the magnification increases with the reduction of distance, but in tubes with a two-element telephoto lens it becomes smaller. As an example, the magnification is calculated for two positions of the object - in infinity and in short distance. - In telescopes built according to the scheme of a three-element telephoto lens (as suggested by B. V. Fefilov and V. A. Belitsin) the sighting error is equal for all distances as the equivalent focal distance of such telescope is constant: formula (9). The magnitude of the sighting error can be greatly reduced in telescopes by passing from the bisecting method to the coinciding method which is used in double-image telescopes and in the reading devices of optic theodolites. The formula (10') shows that for equal conditions the coinciding of lines is about twice as accurate as the bisecting of them. Therefore, the coinciding method applied in double-image telescopes is recommended for increasing the accuracy of sighting. There are 1 figure, 1 table, and 7 Soviet references.

Card 2/3

SOV/154-58-6-14/22

The Accuracy of Sighting With a Telescope Having a Two-Element Telephoto Lens

ASSOCIATION: Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i
kartografii (Moscow Institute for Geodesy, Air Survey and
Cartography Engineers)

SUBMITTED: February 26, 1958

Card 3/3

DUREYKO, G. V., Candidate Tech Sci (diss) -- "The development and investigation of engineering leveling for special work in geodesy and industry". Moscow, 1959. 15 pp (Min Higher Educ USSR, Moscow Inst of Engineers of Geodesy, Aerial Photography, and Cartography), 150 copies (KL, No 24, 1959, 136)

DUREYKO, G.V., kand.tekhn.nauk

Testing the curvature of cylindrical surfaces. Izv. vys. ucheb.
zav.; geod. i aerof. no.2:135-139'61. (MIRA 14:6)

1. Moskovskiy institut inzhenerov geodezii aerofotos'yemki i
kartografi.

(Lenses--Testing)

DUREYKO, I.

On-the-job callisthenics. Zdrav.Belor. 5 no.12:42 D '59.

(MIRA 13:4)

1. Iz Respublikanskogo vrachebno-fizkul'turnogo dispansera (glavnyy vrach V.N. Kovalenko).

(CALLISTHENICS)

DELOYERS, L.; DUPREZ, A.

Methods and indications for the restoration of the common bile duct. Pol. przegl. chir. 35 no.7/8:822-826 '63.

1. Ze Szpitala im. sw. Piotra w Brukseli -- Uniwersytecka
Klinika Chirurgiczna.

(COMMON BILE DUCT) (SURGERY, OPERATIVE)
(GALLBLADDER DISEASES) (BILE DUCTS)
(WOUNDS AND INJURIES) (IATROGENIC DISEASE)

DURGARYAN, A. A., Cand Phys-Math Sci (diss) -- "Investigation of internal friction and Jung's modulus of certain metals". Moscow, 1959. 11 pp (Moscow Order of Lenin and Order of Labor Red Banner State U im M. V. Lomonosov, Phys Faculty), 150 copies (KL, No 14, 1960, 125)

24(6)

AUTHORS:

Shvidkovskiy, Ye.G., Durgaryan, A.A., SOV/155-58-5-29/37
Tyapunina, N.A.

TITLE:

On the Internal Friction in Plastically Deformed Crystals

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye
nauki, 1958, Nr 5, pp 172-176 (USSR)

ABSTRACT:

The authors try to explain the maximum of internal friction observed in [Ref 1,2,3] for plastically deformed polycrystals of Cu and Cd. For this purpose they investigate in parallel the internal friction and the metallographic structure of Cu and Cd. The investigation of the crystals in the initial state in which the student A.A. Aldushin participated, showed a dependence of the internal friction on the granulation of the polycrystals. For plastically deformed crystals the internal friction increases with increasing degree of deformation, attains a maximum and then becomes smaller again. Position and magnitude of the maximum depend weakly on the initial state. Further experiments show that the maximum occurring for plastic deformations is neither connected with the variation of the granulation nor with the appearances

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On the Internal Friction in Plastically
Deformed Crystals

SOV/155-58-5-29/37

on the surface of the crystal grains. It is conjectured that the formation of the maximum of internal friction for crystals which have been subjected before to a plastic deformation is probably connected with the formation of sliding strips in the crystal grains.

There are 6 figures, and 6 references, 2 of which are Soviet, 3 American, and 1 Japanese.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova
(Moscow State University imeni M.V. Lomonosov)

SUBMITTED: June 28, 1958 ✓

Card 2/2

35

66826

~~18(7)~~ 18.8200

AUTHORS: Shvidkovskiy, Ye.G., Durgaryan, A.A. SOV/155-58-5-36/37

TITLE: The Dependence of Internal Friction and of the Young Modulus of Some Metals on the Temperature

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 5, pp 211 - 216 (USSR)

ABSTRACT: According to the resonance method of Cooke [Ref 1] there was measured among others the dependence of internal friction and of the elasticity modulus on the temperature for Bi, Sn, Cd, Zn and Pb. The measurements were carried out under a pressure of 10^{-3} mm mercury column. Limits of error for internal friction are $\pm 7 - 9\%$, for the E-modulus $\pm 0.6\%$.

Change of temperature from -60°C to about $+350^{\circ}\text{C}$. The authors propose to approximate the internal friction by

$\text{tg } \delta = A(T)e^{-\frac{H}{RT}}$ in the range of high temperatures, where H is the activation energy, so that for weakly variable A(T)

the value $\ln \text{tg } \delta$ depends linearly on $\frac{1}{T}$ which is actually

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The Dependence of Internal Friction and of the
Young Modulus of Some Metals on the Temperature

SOV/155-58-5-36/37

true for Sn, Cd, Bi. The occurrence of distinguished relaxation maxima is characteristic for the curves internal friction - temperature. The change of the E-modulus is about linear.

Obreimov and Shubnikov are mentioned in the paper.

There are 8 figures, 1 table, and 6 American references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova
(Moscow State University imeni M.V.Lomonosov)

SUBMITTED: April 11, 1958

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36

18(7)

AUTHORS: Shvidkovskiy, Ye.G., Durgaryan, A.A. SOV/155-58-5-37/37

TITLE: The Dependence of Internal Friction and of the Elasticity Modulus of Some Metals on the Amplitude of Oscillation and on a Preceding Cold Treatment

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskoye nauki, 1958, Nr 5, pp 217-222 (USSR)

ABSTRACT: In the frequency interval 40 - 120 kHz there was measured the dependence of internal friction and of the E-modulus on the temperature for mono- and polycrystals of Cd and Sn, for monocrystals of Bi, polycrystals of Zn and electrolytic Cu. All the measurements were carried out one hour after the preceding torsion. The dependences obtained are non-linear ; for Cu there occur hysteresis phenomena ; the variations of internal friction and of the E-modulus partially take place in opposite direction. Monocrystals as well as polycrystals show maxima on the curve friction - temperature, the position of which depends on the preceding plastic

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The Dependence of Internal Friction and of the Elasticity Modulus of Some Metals on the Amplitude of Oscillation and on a Preceding Cold Treatment SOV/155-58-5-37/37

deformation. The results obtained show good coincidence with the results of N.A. Tyapunova and with [Ref 5]. Obreimov and Shubnikov are mentioned by the authors. There are 7 figures, 2 tables, and 7 references, 1 of which is Soviet, and 6 American.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (Moscow State University imeni M.V. Lomonosov) ✓

SUBMITTED: April 11, 1958

Card 2/2

EWB(1)/EWB(2)/EWP(1)/EEC(1)-2/EWP(1)/ESA(1) PI-4 IJP(1)

Zinc

Shao Shuqun, M. S.

Shao Shuqun

Study the mechanical properties of

polyethylene, polypropylene, and

polybutylene, polyethylene, and

study the mechanism of interfacial
bonding via experiments on the
primary plastic deformation of
zinc, cadmium, and bismuth
etc. All the metals showed a
good agreement between the experimental data for metal

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temperature relaxation experiments. In these experiments, the relative values of the apparent friction, μ , relative to the internal friction, μ_0 , as a function of temperature, T , were plotted. As an example, Figure 1 shows the results for a sample of polyisobutylene, the results for other samples of this polymer, for polyethylene, and for the other polymers studied, are shown in Figures 2, 3, 4, 5, 6, and 7. The curves in

Dr. A. S. Gerasimov, Director
Moscow State Institute

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2. VM

KOCHARYAN, N.M.; DURGARYAN, A.A.

Design of new Geiger-Müller type counters and study of their properties.
Nauch.trudy Brev.un. 48 no.2:71-78 '55. (MLBA 9:9)
(Nuclear counters) (Geiger-Müller counters)

DURGARYAN, A.A.; DANGYAN, M.T.

Condensation of 1,3-dichlorobutene-2 with aromatic hydrocarbons in
presence of zinc chloride [in Armenian with summary in Russian].
Nauch.trudy Brev.un.no.53:33-44 '56. (MLRA 9:10)
(Butene) (Condensation products (Chemistry))

DURGARYAN A. Cand Chem Sci -- (diss) "Syntheses of 1-aryl-3-chlorbutenes-2 and their properties. (On certain possibilities of ~~the~~ obtaining ~~of~~ anomalous products during Grignard-Zaytsev reactions)" Yerevan, 1957. 15 pp (Min of Higher Education USSR. Yerevan State Univ), 150 copies (KL, 5-58, 100)

DURGARYAN, A.A.; DANGYAN, M.T.

"Non-normal" products obtained by the reaction of 1,3-dichloro-2-butene with *o*-, *m*- and *p*-telyl magnesium bromides and benzylmagnesium chloride [in Armenian with summary in Russian]. Nauch. trudy Erev. un. 60:41-57 '57. (MIRA 11:8)

1. Kafedra organicheskoy khimii Yerevanskogo gosudarstvennogo universiteta.

(Butene) (Grignard reagents)

DURGARYAN, A.A.; TITANYAN, S.A.

Synthesis and reactions of 1-chloro-1,2-epoxides. Report No.1:
Synthesis of substituted 2-chloro-2,3-epoxybutanes. Izv.AN Arm.
SSR.Khim. nauki 13 no.4:263-268 '60. (MIRA 13:12)

1. Yerevanskiy gosudarstvennyy universitet, Laboratoriya kinetiki
polimerizatsionnykh protsessov.
(Butane)

18.8200 1520, 1413, 2408

84297
S/022/60/013/002/006/007
C 111/ C 333

AUTHORS: Durgaryan, A. A., Metsburyan, A. M.

TITLE: Internal Friction of Aluminum in Dependence on the
Vibrational Amplitude, the Preceding Plastic Deformation
and on the Time *✓*

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-
matematicheskikh nauk, 1960, Vol.13, No.2, pp.131-138

TEXT: The authors report on the experimental investigation of the dependence of the internal friction $\text{tg } \delta$ of aluminum on the vibrational amplitude A , the plastic torsional deformation ϵ and on the time. The experiments were carried out for frequencies ~ 1 Hz according to the method of the torsional oscillations of (Ref.8). Results: 1. Non-linear dependence of the internal friction on A . 2. If the measurements are started with high amplitudes and if then the amplitudes are diminished, then the curves for internal friction show characteristic maxima (see (Ref.1,2,6)). 3. The curves $\text{tg } \delta = f(\epsilon)$ lie much lower for frequencies of 0.3 Hz than for the frequency 1.5 Hz. 4. For given deformations $\text{tg } \delta$ is almost constant after 2.5 hours. A comparison of the results with (Ref.2,3,4) shows that for low frequencies the considered dependences are the same

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84297
S/022/60/013/002/006/007
C 111/ C 333

Internal Friction of Aluminum in Dependence on the Vibrational Amplitude, the Preceding Plastic Deformation and on the Time as for high frequencies.

There are 6 figures, and 8 references: 4 Soviet and 4 American.

ASSOCIATION: Yerevanskiy gosudarstvennyy universitet (Yerevan State University)

SUBMITTED: October 19, 1959

Card 2/2

DURGARYAN, A.A.

Production and reactions of 1-chloro-1, 2-epoxides. Report No.2:
Synthesis of some 2-aminothiazoles. Izv.AN Arm.SSR.Khim.nauki 14
no.1:51-55 '61. (MIRA 15:5)

1. Yerevanskiy gosudarstvennyy universitet, problemnaya laboratoriya
fiziko-khimii polimerov.
(Epoxy compounds) (Thiazole)

S/171/62/015/005/006/008
E075/E592

AUTHORS: Durgaryan, A.A., Grigoryan, A.S. and Chaltykyan, O.A.

TITLE: Copolymerization of vinylacetate with 1,3-dichlorobutene-2 and conversions of the obtained copolymers

PERIODICAL: Akademiya nauk Armyanskoy SSR, Izvestiya. Seriya khimicheskikh nauk. v.15, no.5, 1962, 455-461

TEXT: The copolymerization of 1,3-dichlorobutene-2 was investigated in view of the previously established fact that it does not undergo a radical polymerization. The copolymerization was carried out in sealed ampules and also in a flask with a reflux condenser, using 2% benzoyl peroxide as initiator. The relative activities of vinylacetate and 1,3-dichlorobutene-2 were calculated from the dependence of the copolymer composition and that of the mixture of monomers, using the Mayor-Lewis formula and found to be 4.8 ± 0.9 and 0.0, respectively. The rate of the copolymerization and the maximum percentage conversion of vinylacetate decrease with the content of 1,3-dichlorobutene-2. This indicates that the latter monomer acts as a chain transfer agent and a weak inhibitor. The intrinsic viscosity of the copolymer also decreases. The intrinsic viscosity and molecular weight of

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Copolymerization of vinylacetate ... S/171/62/015/005/006/008
E075/E592

the copolymer increase, but the copolymerization rate decreases, when the temperature of the copolymerization decreases from 80°C to 35°C. However, at 35°C and in the presence of benzoyl peroxide, vinylacetate alone polymerizes more rapidly. The average molecular weight of the copolymers was about 11000. The copolymers react with thiourea forming substituted isothiurea salts. The latter are saponified by aqueous/alcoholic NaOH, the acetate groups undergoing alcoholysis. The interaction of the copolymers with dimethylamine is accompanied by a partial removal of the acetate groups. The resulting products contain Cl, OH, acetate and amino-groups. There are 3 figures and 5 tables.

ASSOCIATION: Yerevanskiy gosudarstvennyy universitet, Problemnaya laboratoriya fiziko-khimii polimerov
(Yerevan State University. Problem Laboratory for Physics and Chemistry of Polymers)

SUBMITTED: July 24, 1962

Card 2/2

S/171/62/015/005/007/008
E075/E592

AUTHOR:

Durgaryan, A.A.

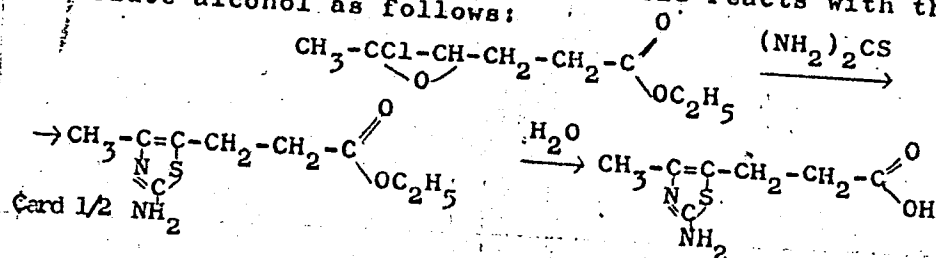
TITLE:

Preparation and reactions of 1-chloro-1, 2-epoxides.
Communication 4. Synthesis of some thiazol and
imidazol compounds

PERIODICAL: Akademiya nauk Armyanskoy SSR. Izvestiya. Seriya
khimicheskikh nauk. v.15, no.5, 1962, 481-487

TEXT:

Carbonic acid esters not saturated with Cl were
oxidized with perbenzoic acid. The interaction of the resulting
compounds with thiourea was studied and also that of
4-phenyl-3-chloro-2,3-epoxybutanes with formamide. Ethyl ester
of 3-chloro-2, 3-epoxybutylacetic acid reacts with thiourea in
absolute alcohol as follows:

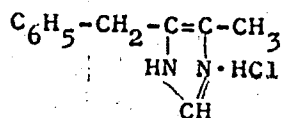


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Preparation and reactions of ...

S/171/62/015/005/007/008
E075/E592

Diethylester of 3-chloro-2,3-epoxybutylmalonic acid undergoes an analogous reaction with thiourea. The reactions proceed well at 90°C. The reaction with formamide takes place only at 175-180°C with the formation of imidazoles. Thus, 1-phenyl-3-chloro-2,3-epoxybutane gives



✓

The equivalent formate and ammonium formate are also formed. An analogous reaction takes place between formamide and 1-(2,5-dimethylphenyl)-3-chloro-2,3-epoxybutane.

ASSOCIATION: Yerevanskiy gosudarstvennyy universitet
Problemnaya laboratoriya fiziko-khimii polimerov
Yerevan State University, Problem Laboratory for
Physics and Chemistry of Polymers)

SUBMITTED: June 27, 1962

Card 2/2

S/171/62/015/006/004/006
EO71/E492

AUTHOR: Durgaryan, A.A.

TITLE: The preparation and reactions of 1-chloro-1,2-epoxides
Communication 5. The synthesis of α -rhodan- and
 α -aminoketones

PERIODICAL: Akademiya nauk Armyanskoy SSR. Izvestiya. Khimicheskiye
nauki, v.15, no.6, 1962, 535-539

TEXT: In earlier work (Izv. AN ArmSSR, KhN, v.14, 1961, 51, 165;
v.15, 1962, 481) properties of 1-chloro-1,2-epoxides (I) were
studied and a new method of preparation of five-membered rings
with two heteroatoms was developed. The formation of these
compounds from (I) was explained by the break of the carbon-oxygen
bond at the carbon atom to which chlorine was not bound. In order
to confirm this supposition and to develop a new method of
synthesis of α -amino- and α -rhodanoketones, the interaction of (I)
with rhodanides of metals and diethylamine was investigated.
On the interaction of 1-phenyl- and 1-(2,5-dimethylphenyl)-
3-chloro-2,3-epoxybutanes with potassium or ammonium rhodanide
4-phenyl- and 4-(2,5-dimethylphenyl)-3-rhodanbutanones-2 were
Card 1/2

The preparation and reactions ...

S/171/62/015/006/004/006
EO71/E492

obtained. The structure of the compounds obtained was confirmed by the synthesis of 4-phenyl-3-rhodan-butanone-2 by the known method from 4-phenyl-3-chlorobutanone-2 and potassium cyanide. Similarly 1-aryl-3-chloro-2,3-epoxybutanes reacted with diethylamine forming 4-aryl-3-diethylaminobutanones-2. The structure was confirmed by the formation of chlorohydrates, iodomethylates, semicarbazones and the iodoform reaction. There is 1 table. ✓

ASSOCIATION: Yerevanskiy gosudarstvennyy universitet,
Problemnaya laboratoriya fiziko-khimii polimerov
(Yerevan State University, Problem Laboratory for
Physics and Chemistry of Polymers)

SUBMITTED: June 27, 1962

Card 2/2

DURGARYAN, A.A.; AGUMYAN, A.O.

Copolymerization of aldehydes with vinyl monomers. Vysokom.sped.
5 no.11:175 N '63. (MIRA 17:1)

44268

S/190/63/005/001/003/020
B117/B186

5.3832
5.3610

AUTHORS: Durgaryan, A. A., Beginyan, R. M. ;

TITLE: Heterochain copolymerization. (1) Copolymerization of epichlorohydrin with aceto- and benzonitriles

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 1, 1963, 28-31

TEXT: This is the first communication on studies relating to the copolymerization of compounds in which the carbon is multiply bonded to atoms of other elements, compounds with strained rings and heteroatoms in the chain, their copolymerization with one another and with ethylene and diene compounds. The object was to find possibilities of producing polymers with heteroatoms in the chain and to establish the rules governing this reaction. The block copolymerization of epoxy compounds (epichlorohydrin) with nitriles (aceto- and benzonitriles) in the presence of tin chloride was studied at $70 \pm 0.2^{\circ}\text{C}$. It was proved by fractional precipitation of the reaction products that copolymers, not telomers, were formed. Either solid substances or viscous liquids were obtained, the former having a higher nitrogen content and higher molecular weight. Pure

Card 1/2

Heterochain copolymerization. ...

S/190/63/005/001/003/020
B117/B186

homopolymer of epichlorohydrin could not be isolated. Nitriles were not polymerized under the conditions mentioned. They were less active than epichlorohydrin; benzonitrile was more active than acetonitrile. This was determined from the relative activities as calculated by the equation of F. R. Mayo and F. M. Lewis (J. Amer. Chem. Soc., 66, 1594, 1944): epichlorohydrin and acetonitrile, $r_1 = 4.2 \pm 0.4$, $r_2 = 0 \pm 0.02$; epichlorohydrin and benzonitrile, $r_1 = 2.8 \pm 0.2$, $r_2 = 0 \pm 0.02$. By saponification and hydrolysis of the copolymers it was found that no new C-C bonds were formed during copolymerization. The nitrogen atom of the nitrile group seems to be bound to the carbon atom of the epoxy group, and the carbon atom of the nitrile group to the oxygen atom of the epoxy group. The principal chain of the copolymer must have the following structure:

... — C — N — (C — C — O)_x — C — N — C — C — O — . There are 1 figure and 2 tables.

ASSOCIATION: Yerevanskiy gosudarstvennyy universitet (Yerevan State University)

SUBMITTED: July 12, 1961

Card 2/2

DURGARYAN, A.A.; BEGINYAN, R.M.

Control of the composition of polymers by copolymerization catalysts.
Vysokom.soed. 6 no.2:362-363 F '64. (MIRA 17:2)

AYKAZYAN, E.; ISABEKYAN, S.; DURGARYAN, A.

- . Polarographic behavior of polyhalogen organic compounds. Reduction of methyl pentachloroethyl ketone. Izv. AN Arm.SSR. Khim.nauki 18 no.1:114-117 '65. (MIRA 18:5)

1. Institut organicheskoy khimii AN ArmSSR.

U.S. DEPARTMENT OF COMMERCE

44/RM

U.S. PATENT OFFICE

U.S. PATENT OFFICE
541 54

U.S. PATENT OFFICE

37

AUTHOR: Durgaryan, A.A.; Beginyan, R.M.

Regenerus-chain copolymerization. Part 1. Influence of the composition of the catalysts on the composition of the copolymer.

USSR, Izvestiya, Khimicheskaya industriya, 1989, 145

Copolymerization, organoaluminum compounds, copolymerization, aluminum chloride, acetonitrile, benzene, copolymerization, copolymerization

The activity of acetonitrile and benzene in the copolymerization of styrene was studied as a function of the composition of the reaction medium. The copolymerization catalyst for acetonitrile was aluminum chloride, and for benzene, aluminum isopropoxide. The influence of the composition of the reaction medium on the rate of the copolymerization and the composition of the copolymer was investigated. It was found that the composition of the copolymer changed only slightly as a function of the composition of the reaction mixture. The catalysts (aluminum isopropoxide and aluminum chloride) and zinc

AP 5015845

... ideal controlling catalyst would keep the composition of the copolymer constant. The composition of the initial monomers was determined by the analysis of the copolymer which satisfies the equation obtained. 10 figures, 12 formulas and 4 tables.

Problemnaya laboratoriya kinetiki polimerizatsii (Problems of Polymerization Kinetics Laboratory), Yerevan State University (Laboratory of Polymerization Kinetics of the Faculty of Chemistry, Yerevan State University).

28 Nov 63

ENCL: 00

SUB: 00000000

002

OTHER: 007

DURGARYAN, A.A.; AGUMYAN, A.O.

Reaction of styrene with 1,3-dichloro-2-butene in the presence of benzoyl peroxide and tin tetrachloride. Izv. AN Arm. SSR. Khim. nauki 18 no.3:290-296 '65. (MIRA 18:11)

1. Yerevanskiy gosudarstvennyy universitet, problemnaya laboratoriya kinetiki polimerizatsionnykh protsessov. Submitted November 6, 1963.

L 40386-66 EWT(1)/EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD
 ACC NR: AP6027208 SOURCE CODE: UR/0431/66/001/003/0203/0204

AUTHOR: Durgaryan, A. A.; Badalyan, E. S.

ORG: Yerevan State University (Yerevanskiy gosudarstvennyy universitet)

TITLE: The effect of optical radiation on the internal friction of crystals

SOURCE: AN ArmSSR. Izvestiya. Fizika, v. 1, no. 3, 1966, 203-204

TOPIC TAGS: internal friction, Young modulus, lead, bismuth, zinc, germanium, ^{LIGHT}
 RADIATION EFFECT, METAL CRYSTAL

ABSTRACT: Measurements were made of the internal friction and Young's modulus of Bi, Sn, Zn, and p-Ge crystals. Measurements were made under constant temperature in vacuum and in the air at a frequency of 60 kcs under concentrated illumination and in darkness. The results (see Table 1) indicate that the internal friction (tg δ) of Sn, Bi, and Zn decreases considerably under illumination, while that of Ge increases. The Young's modulus of all the crystals decreased by approximately 1%. The measurements were carried out by means of the composite rod method and were checked by the

Card 1/2

L 40386-66

ACC NR: AP6027208

Table 1. Measurement results

Measurements made	Bi $\text{tg } \delta \cdot 10^3$	Sn $\text{tg } \delta \cdot 10^3$	p-Ge $\text{tg } \delta \cdot 10^3$	Zn $\text{tg } \delta \cdot 10^3$
In air	3.3	5.8	2.1	5.8
In vacuum without light	3.09	5.6	1.3	5.6
In vacuum with un- filtered light	1.72	2.5	3.1	3.5
Red filter	1.72	4.4	2.4	3.6
UV	—	4.3	4.6	3.0

free oscillations method. The experimental error did not exceed $\pm 7\%$ for $\text{tg } \delta$ and $\pm 0.1\%$ for Young's modulus. The nature of the observed effect is being studied. Orig. art. has: 1 table. [YK]

SUB CODE: 20 / SUBM DATE: 06Mar66/ ATD PRESS: 5052

Card 2/2 vmb

L 00839-67 EWT(m)/T/ENP(j) IJE(c) NW/RM
ACC NR: AP6027764 (A) SOURCE CODE: UR/0190/66/008/008/1321/1325

AUTHOR: Durgaryan, A. A.; Arakelyan, R. A.

ORG: Yerevan State University (Yerevanskiy gosudarstvennyy universitet)

TITLE: Copolymerization of ethylene oxide with acetonitrile, benzonitrile,
and acrylonitrile

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 8, 1966, 1321-1325

TOPIC TAGS: copolymerization, ethylene oxide, acetonitrile, acrylonitrile,
reaction mechanism, monomer, polymerization catalyst

ABSTRACT: An investigation has been made on copolymerizing ethylene oxide with acetonitrile, benzonitrile, and acrylonitrile by cationic, anionic, and radical mechanisms. The copolymerization constants were measured. It was found that ethylene oxide was more active than nitriles with the cation mechanism and more active than acetonitrile and benzonitrile in anion copolymerization. Acrylonitrile is polymerized with ethylene oxide by the cation mechanism basically due to the nitrile group. Aluminum isopropylate was found to be independent of the composi-

Card 1/2

UDC: 66.095.26+678.13+678.55+678.745

L 00839-67

ACC NR: AP6027764

tion of the initial monomer mixture. Orig. art. has: 1 figure, 2 formulas, and
3 tables. [Based on authors' abstract] [NT]

SUB CODE: 07/ SUBM DATE: 20Feb65/ ORIG REF: 003/ OTH REF: 005/

Card 2/2 pb

L 00826-67 EWT(m)/ENP(j)/T LJP(c) WW/RM

ACC NR: AP6027765 (4) SOURCE CODE: UR/0190/66/008/008/1326/1329

AUTHOR: Durgaryan, A. A.; Beginyan, R. M.

32
B

ORG: Yerevan State University (Yerevanskiy gosudarstvennyy universitet)

TITLE: Controlling the composition of a copolymer during copolymerization of epichlorohydrin with acetonitrile in the presence of various catalysts

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 8, 1966, 1326-1329

TOPIC TAGS: copolymerization, acetonitrile, zinc chloride, benzene, copolymer, polymerization catalyst

ABSTRACT: A study has been made of the bulk copolymerization of epichlorohydrin with acetonitrile in the presence of zinc chloride and aluminum isopropoxide and isobutoxide as catalysts. The copolymerization was conducted in solution and in bulk. The copolymer composition was found to be practically independent of the monomer ratio. The composition of the copolymer was affected by the catalysts used. Orig. art. has: 2 figures and 2 tables. [Based on authors' abstract] [NT]

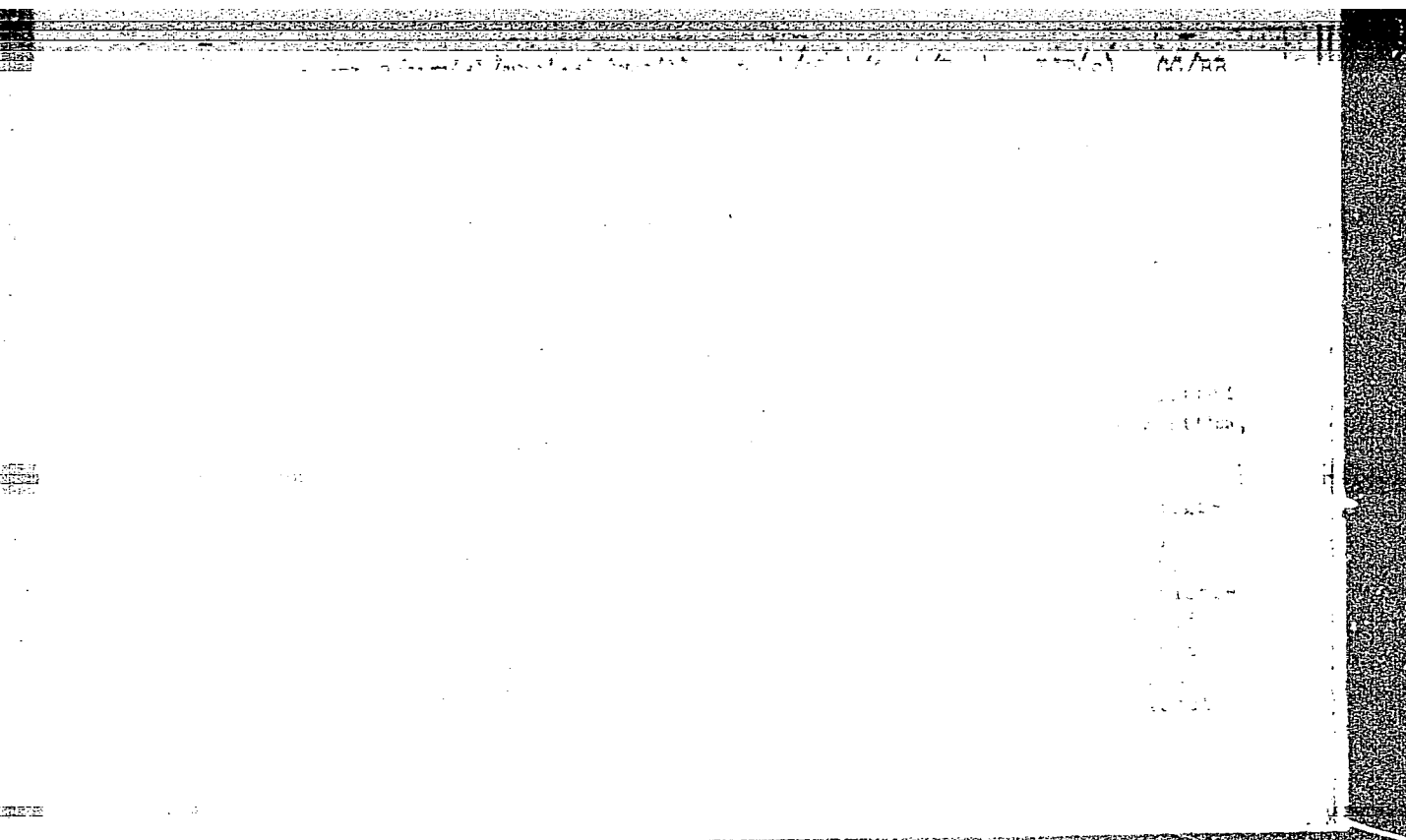
SUB CODE: 07/ SUBM DATE: 20Feb65/ ORIG REF: 006/ OTH REF: 003

Card 1/1 fv

UDC: 66.095.26+678.13+678.55+678.745

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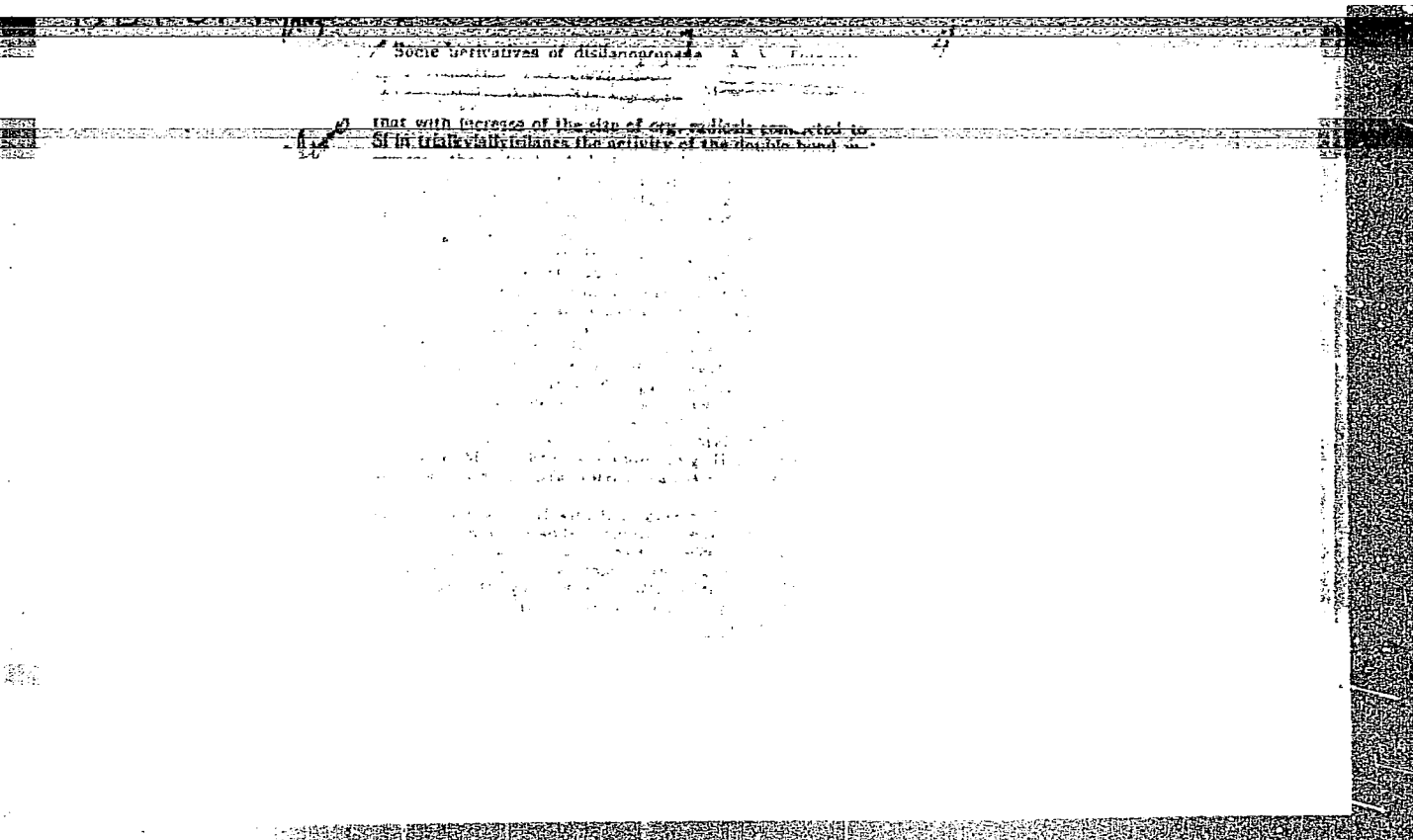
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... in the decision, ...



NAMETKIN, N.S.; TOPCHIEV, A.V.; CHEMNYSHOVA, T.I.; DURGARIYAN, S.G.

Synthesis and properties of silicohydrocarbons of the disilano-
propane series. Trudy MNI no.23:22-30 '58. (MIRA 12:1)
(Silicon organic compounds)

NAMETKIN, N.S.; TOPCHIEV, A.V.; DURGAR'YAN, S.G.; TOLCHINSKIY, I.M.

Copolymerization of dimethyl- and methylphenyldiallylsilane with propylene on the complex catalyst $(C_2H_5)_3Al + TiCl_4$. Vysokom. soed. 1 no.11:1739-1744 N '59. (MIRA 13:5)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Silane) (Propene)

5.3700(B)

5(3)

67954

SOV/20-130-1-29/69

AUTHORS:

Topchiyev, A. V., Academician, Nametkin, N. S., Durgar'yan, S. G.

TITLE:

Addition of Trichlorosilane to Dialkyl-(phenyl, chlorine)-
diallylsilanes in the Presence of $H_2PtCl_6 \cdot 6H_2O$

PERIODICAL:

Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 1, pp 105-108 (USSR)

ABSTRACT:

Under the conditions chosen by the authors for the reaction mentioned in the title, an addition of trichlorosilane took place to one as well as to 2 double bonds of the silanes mentioned in the title. The total yield in addition products varied between 55 and 75% (Table 1). The authors' investigation showed that the activity of the double bond with respect to the addition reactions depends on the quality of atoms and groups bound to the silicon atom. The activity of the double bond in the dialkyl-(phenyl, chlorine)-diallylsilanes increases with an increase in the alkyl radicals as well as in their substitution by a phenyl radical or a chlorine atom. Thus, for instance, the trichlorosilane is added to dimethyl-, diethyl-, dipropyl- and dibutyl-diallylsilane with a total yield in addition products of 56-63%. In its addition to diphenyl- and dichloroallylsilane, the yield is 70 and 75%, respectively (Table 1). The authors produced a series of silicon hydrocarbons by interaction of chloroderivatives

Card 1/2

Addition of Trichlorosilane to Dialkyl-

(phenyl, chlorine)-diallylsilanes in the Presence of $H_2PtCl_6 \cdot 6H_2O$

67954

SOV/20-130-1-29/69

developed by addition of trichlorosilane to 2 double bonds of lithium alkyls. Infrared spectra (recorded by Yu. P. Yegorov) of the latter showed that the addition of trichlorosilane proceeds here contrary to Markovnikov's rule (see Scheme). The interaction between trichlorosilane and vinyltrichlorosilane, styrene or octene-1 in the presence of $NiCl_2 \cdot 5C_5H_5N$ may also lead to an addition both according to Markovnikov's rule and contrary to this rule (Ref 16). There are 1 table and 17 references, 5 of which are Soviet.

SUBMITTED: August 10, 1959

Card 2/2

5.3700

78283

204/11-30-3-37/69

AUTHORS: Topchiyev, A. V., Nametkin, M. S., Durgar'yan, S. G.

TITLE: Addition of Trichlorosilane to Trialkyl-(phenyl, chloro)-allylsilanes. Certain Silicon Hydrocarbons of Disilanepropane Series

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 3, pp 927-932 (USSR)

ABSTRACT: Addition of trichlorosilane to trialkyl-phenyl, chloro-allylsilanes in the presence of benzoyl peroxide and chloroplatinic acid was studied. The addition products of trichlorosilane to monoallyl derivatives of silicon are given in Table 2. The activity of the double bond in monoallyl derivatives of silicon increases with the increasing size of alkyl radicals, and with substitution by phenyl radicals or chlorine atoms. The reaction of chloro derivatives of disilanepropane, prepared by addition of trichlorosilane to monoallyl derivatives of silicon, with alkyllithium yields hexaalkyl

Card 1/1

Addition of Trichlorosilane to Trialkyl-
(phenyl, chloro)-allylsilanes. Certain
Silicon Hydrocarbons of Disilane-propene
Series

78285
SOV/79-30-3-37/69

Table 2

2	3	4	5, 6		8	9
			5	6		
1	$(CH_3)_3SiCH_2CH_2CH_2SiCl_3$	187-189° (742)	42.63	42.38 42.53	25 *	50.0
2	$(C_2H_5)_3SiCH_2CH_2CH_2SiCl_3$	126-127 (5)	36.43	36.26 36.41	10.0 *	31.2
3	$(C_3H_7)_3SiCH_2CH_2CH_2SiCl_3$	167-169 (12)	31.80	31.89 32.17	3.4	59.2
4	$(C_4H_9)_3SiCH_2CH_2CH_2SiCl_3$	176-178 (4)	28.32	28.25 27.88	13.2	61.9
5	$(C_6H_5)_3SiCH_2CH_2CH_2SiCl_3$	237-239 (2)	24.59	24.46 24.29	29.1	68.3
6	$(CH_3)_2C_6H_4SiCH_2CH_2CH_2SiCl_3$	153-155 (7)	34.19	33.85 33.79	22.0	57.2
7	$Cl_3SiCH_2CH_2CH_2SiCl_3$	116.5-118 (5)	68.45	68.76 68.94	62.2	80.8

Key to Table 2: (1) Trialkyl(aryl)trichlorodisilane-
propanes; (2) Nr; (3) Compound; (4) bp (pressure in
mm); (5) Found; (6) Calculated; (7) Yield (%); (8)
benzoyl peroxide $(C_6H_5CO)_2O_2$; (9) Chloroplatinic acid.

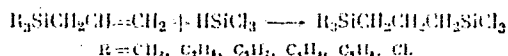
Card 2/6

Addition of Trichlorosilane to Trialkyl-
(phenyl, chloro)-allylsilanes. Certain
Silicon Hydrocarbons of Disilane-
Series

78283

SOV/79-30-3-37/69

(phenyl) derivatives of disilane-
physicochemical constants are shown in Table 3.
The infrared spectra of the hexalkyl(phenyl) derivatives
of disilane- indicate that the addition of
trichlorosilane to trialkyl-(phenyl, chloro)-allylsilanes
occurs contrary to Markownikoff's rule.



There are 3 tables; and 17 references, 5 Soviet,
6 U.S., 5 Japanese, 1 U.K. The 5 most recent U.S.
references are: Sommer, L. H., Mackey, F. P., et al.,
J. Am. Chem. Soc., 79, 2764 (1957); Spier, J. L.,
Webster, J. A., J. Am. Chem. Soc., 78, 1044 (1956);
Spier, J. L., Webster, J. A., Barnes, G. H., J. Am.
Chem. Soc., 78, 70 (1956); Sommer, L. H., Pietrusza,
E. W., Whitmore, F. C., J. Am. Chem. Soc., 69, 188

Card 3/6

Addition of Trichlorosilane to Trialkyl-
(phenyl, chloro)-allylsilanes. Certain
Silicon Hydrocarbons of Disilane-propane
Series

78283
80V/79-30-3-37/69

Table 3. Hexalkyl(phenyl) derivatives of disilane-propane.

2	3	4	n_D^{20}	d_4^{20}
1	$(CH_3)_3SiCH_2CH_2CH_2Si(CH_3)_3$	167-169° (748)	1.4218	0.7551
2	$(C_2H_5)_3SiCH_2CH_2CH_2Si(C_2H_5)_3$	140-141 (3)	1.4572	0.8153
3	$(C_3H_7)_3SiCH_2CH_2CH_2Si(C_3H_7)_3$	182-183 (4)	1.4590	0.8215
4	$(C_4H_9)_3SiCH_2CH_2CH_2Si(C_4H_9)_3$	216-218 (3.5)	1.4624	0.8304
5	$(C_5H_{11})_3SiCH_2CH_2CH_2Si(C_5H_{11})_3$	mp 120-121°	—	—
6	$(CH_3)_3SiCH_2CH_2CH_2Si(C_6H_5)_3$	119-118 (8)	1.4430	0.7980
7	$(CH_3)_3SiCH_2CH_2CH_2Si(C_6H_5)_3$	147-148 (8)	1.4461	0.8033
8	$(CH_3)_3SiCH_2CH_2CH_2Si(C_6H_5)_3$	170-172 (8)	1.4499	0.8102
9	$(CH_3)_3SiCH_2CH_2CH_2Si(C_6H_5)_3$	219-221 (4) mp 71-72°	—	—

Card 4/6

Addition of Trichlorosilane to Trialkyl-
(phenyl, chloro)-allylsilanes. Certain
Silicon Hydrocarbons of Disilane propane
Series

78283
30V/79-30-3-37/69

Table 3.

MR _s		7		8	
5	6	C	H	C	H
63.09	63.06	57.22, 57.51	12.74, 12.72	57.37	12.84
89.98	90.12	60.10, 60.23	13.35, 13.53	60.10	13.31
118.25	118.62	70.77, 70.81	13.62, 13.60	70.70	13.56
146.06	145.92	73.55, 73.59	13.51, 13.60	73.55	13.72
—	—	83.63, 83.65	6.44, 6.30	83.52	6.47
76.58	76.95	62.76, 62.67	13.26, 13.21	62.53	13.11
90.50	90.84	66.09, 66.18	13.37, 13.42	66.09	13.31
104.35	104.39	68.72, 68.86	13.52, 13.42	68.70	13.45
—	—	76.85, 76.84	7.80, 7.90	76.94	8.07

Key to Table 3: (2) Nr; (3) Compound; (4) bp
(pressure in mm); (5) Found; (6) Calculated; (7)
Found (%); (8) Calculated (%).

Card 5/6

Addition of Trichlorosilane to Trialkyl-
(phenyl, chloro)-allylsilanes. Certain
Silicon Hydrocarbons of Disilane propane
Series

78283

SOV/79-30-3-37/69

(1947) ; Burkhard, C. A., Krieble, K. H., J. Am.
Chem. Soc., 69, 2867 (1947).

ASSOCIATION: Institute of Petrochemical Synthesis of the Academy
of Sciences of the USSR (Institut neftekhimicheskogo
sinteza Akademii nauk SSSR)

SUBMITTED: August 31, 1958

Card 6/6

82679

S/079/60/030/008/003/008
B004/B064

5.3700

AUTHORS: Nametkin, N. S., Topohiyev, A. V., Durgar'yan, S. G.,
Kuz'mina, N. A.

TITLE: The Addition of Trichlorosilane¹ to Dialkyl(Phenyl,Chloro)
Diallyl Silane. Some Silicon Hydrocarbons Obtained From
the Addition Products¹

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 8,
pp. 2594 - 2600

TEXT: The authors proceeded on the basis of the reaction published in
Ref. 2: $R_2Si \begin{matrix} \swarrow CH=CH_2 \\ \searrow CH=CH_2 \end{matrix} + HSiCl_3 \rightarrow R_2Si \begin{matrix} \swarrow CH_2CH_2SiCl_3 \\ \searrow CH_2CH_2SiCl_3 \end{matrix}$. They carried out this

reaction with diallyl compounds. Benzoyl peroxide, platinum on coal, and
platinum hydrochloric acid were used as catalysts. The two latter de-
veloped a greater activity in this connection. The activity of the double
bond in the dialkyl(phenyl,chloro)diallyl silanes increased both with
the size of the alkyl radicals and also with their substitution by

Card 1/3

82679

The Addition of Trichlorosilane to
Dialkyl(Phenyl,Chloro)Diallyl Silane.

S/079/60/030/008/003/008
B004/B064

Some Silicon Hydrocarbons Obtained From the Addition Products

phenyl radicals or chlorine. The infrared spectra proved that the addition takes place against the Markovnikov rule. Physical data, analyses, and yields are mentioned as follows: Table 1: $R_2Si(CH_2CH=CH_2)_2$, where

$R = CH_3, C_2H_5, C_3H_7, C_4H_9, (C_6H_5)_2Si(CH_2CH=CH_2)_2, (CH_3)_2C_6H_5Si(CH_2CH=CH_2)_2$

and $Cl_2Si(CH_2CH=CH_2)_2$. Table 2: $R_2(CH_2=CHCH_2)Si(CH_2)_3SiCl_3$ (R as in

Table 1); $(C_6H_5)_2(CH_2=CHCH_2)Si(CH_2)_3SiCl_3$; $C_6H_5(CH_3)(CH_2=CHCH_2)Si(CH_2)_3-$

$-SiCl_3$ and $Cl_2(CH_2=CHCH_2)Si(CH_2)_3SiCl_3$; Table 3: $R_2Si(CH_2CH_2CH_2SiCl_3)_2$

and the corresponding C_6H_5- , $C_6H_5(CH_3)-$ and Cl_2 compounds; Table 4:

$(CH_3)_2Si[(CH_2)_3Si(CH_3)_3]_2$, the corresponding C_2H_5- , C_3H_7- , C_4H_9- , and

C_6H_5 compounds, further $(CH_3)_2Si[(CH_2)_3Si(C_2H_5)_3]_2$,

$(CH_3)_2Si[(CH_2)_3Si(C_3H_7)_3]_2$, $(CH_3)_2Si[(CH_2)_3Si(C_4H_9)_3]_2$,

$(CH_3)_2Si[(CH_2)_3Si(C_6H_5)_3]_2$, $CH_3(C_6H_5)Si[(CH_2)_3Si(CH_3)_3]_2$,

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82679

The Addition of Trichlorosilane to S/079/60/030/008/003/008
Dialkyl(Phenyl,Chloro)Diallyl Silane. B004/B064
Some Silicon Hydrocarbons Obtained From the Addition Products

$\text{CH}_3(\text{C}_6\text{H}_5)\text{Si}[(\text{CH}_2)_3\text{Si}(\text{C}_6\text{H}_5)_3]_2$, and $(\text{C}_6\text{H}_5)_2\text{Si}[(\text{CH}_2)_3\text{Si}(\text{CH}_3)_3]_2$.

There are 4 tables and 3 references: 2 Soviet and 1 Japanese.

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR
(Institute of Petroleum-chemical Synthesis of the
Academy of Sciences USSR)

SUBMITTED: August 31, 1959

Card 3/3

S/079/60/030/008/004/008
B004/B064

AUTHORS: Durgar'yan, S. G., Yegorov, Yu. P., Nametkin, N. S.,
Topchiyev, A. V.

TITLE: Determination of the Structure of a Series of Organo-
silicon Compounds Obtained by Adding Trichlorosilane to
Mono- and Diallyl Derivatives of Silicon by Infrared
Spectroscopy

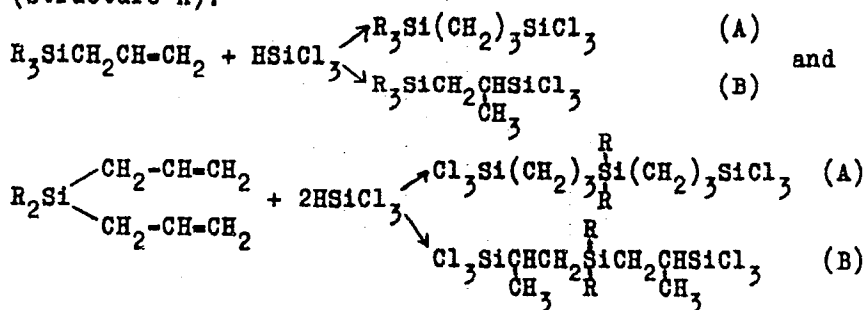
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 8,
pp. 2600 - 2608

TEXT: The following compounds were investigated (Table 1):
 $R_3Si(CH_2)_3SiR_3$, where $R = CH_3, C_2H_5, C_3H_7, C_4H_9, C_6H_5$, and Cl ;
 $(CH_3)_3Si(CH_2)_3SiR_3$; $R_2Si[(CH_2)_3SiR_3]_2$; $(CH_3)_2Si[(CH_2)_3SiR_3]_2$;
 $C_6H_5(CH_3)Si[(CH_2)_3Si(CH_3)_3]_2$; $C_6H_5(CH_3)Si[(CH_2)_3Si(C_6H_5)_3]_2$, and
 $(C_6H_5)_2Si[(CH_2)_3Si(CH_3)_3]_2$. These compounds were obtained by adding
 $HSiCl_3$ to mono- and diallyl derivatives of silicon using benzoyl

Card 1/3

Determination of the Structure of a Series of S/079/60/030/008/004/008
Organosilicon Compounds Obtained by Adding B004/B064
Trichlorosilane to Mono- and Diallyl Derivatives
of Silicon by Infrared Spectroscopy

peroxide, platinum on coal or platinum hydrochloric acid as catalyst.
It was the aim of this paper to find whether the addition takes place
according to the Markovnikov rule (structure B) or against this rule
(structure A):



The infrared spectra were recorded with a MKC-12 (IKS-12) spectrometer
in the range of 700 - 1700 cm⁻¹ and 2800 - 3000 cm⁻¹. Table 2 shows the

Card 2/3

Determination of the Structure of a Series of S/079/60/030/008/004/008
Organosilicon Compounds Obtained by Adding B004/B064
Trichlorosilane to Mono- and Diallyl Derivatives
of Silicon by Infrared Spectroscopy

intensities of the 2952 cm^{-1} peak and the CH_3 group. The number of CH_3 groups calculated herefrom corresponds to structure A. The same holds for the intensity of the 2912 cm^{-1} peak of the CH_2 group (Table 3).

Characteristic bands are found at about 900 and between $1135\text{--}1140\text{ cm}^{-1}$ in the range of $700\text{--}1700\text{ cm}^{-1}$ (Fig.), which are ascribed to group $\text{SiCH}_2\text{CH}_2\text{CH}_2\text{Si}$ and also confirm structure A. Table 4 shows, with reference to published data, the characteristic frequencies of the radicals bound to the silicon atom, and the spectra in which the authors found these frequencies. Graphs are given of 21 spectra. There are 22 figures, 4 tables, and 4 references: 1 Soviet, 2 US, and 1 British. ✓

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR
(Institute of Petroleum-chemical Synthesis of the
Academy of Sciences USSR)

SUBMITTED: August 31, 1959

Card 3/3

DURGARYAN, S. G., NAMETKIN, N. S., TOPCHIEV, A. V.

"The synthesis of organosilicon polymers on a complex catalyst (C_2H_5), Al
+ $TiCl_4$.

report presented at the International Polymer Symposium, (IUPAC), Moscow, USSR,
14-18 June 1960.

DURGAR'YAN, S. G., Cand Chem Sci -- (diss) "Study of reactions of addition of hydridesilanes to allyl derivatives of silicon and the polymerization of dialkyl (phenyl) diallylsilanes." Moscow, 1960. 14 pp; (Inst of Petrochemical Synthesis of the Academy of Sciences USSR); 150 copies; price not given; (KL, 25-60, 127)

International symposium on macromolecular chemistry, Moscow, 1960.	257/4982
Macromolecular chemistry of polymers. Section I. (Interscience Symposium on Macromolecular Chemistry Held in Moscow, June 11-18, 1960). Part I. Summary. Section I.) Moscow, 1960. 346 p. 1,500 copies printed.	
Sponsoring Agency: The International Union of Pure and Applied Chemistry, Commission on Macromolecular Chemistry.	
Trans. No. 1. V. Polymers.	
PURPOSE: This collection of articles is intended for chemists and researchers interested in macromolecular chemistry.	
CONTENTS: This is Section I of a multivolume work containing scientific papers on macromolecular chemistry in Moscow. The material includes data on the synthesis and properties of polymers, and on the processes of polymerization, copolymerization, polymerization, and polymerization. Each text is presented in full or summarized in French, English, and Russian. There are 47 papers, 28 of which were presented by Soviet, Russian, Hungarian, and Czechoslovak scientists. No personal data are mentioned. References accompany individual articles.	
Titarenko, Ye. I., B. A. Bolgachev, E. G. Zhuravleva, R. N. Kozlovskaya, and I. E. Kuznetsov (USSR). The synthesis of cis- and trans-diene polymers on oxide catalysts and a study of their structure and properties	13
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya (USSR). Synthesis and polymerization of substituted polyacetylenes	47
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). The structure of branched unsaturated polyacetylenes	58
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). Method of preparation of polyacetylenes and their oligomers	64
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). Analysis of cross-linked polyacetylenes	72
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). The synthesis and properties of crystalline polymers of the type of poly-p-xylylene and polyphenylenevinylene	90
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). Crystalline polyacetylene and copolymerization of divinylacetylene	101
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). Synthesis of crystalline polyacetylenes	118
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). Polymerization of polyfunctional compounds	123
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). Polymerization of vinylacetylene in the presence of butyllithium and titanium chloride type catalysts	131
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). On the preparation of the new type of linear polymers by the reaction of polymer combination	141
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). The synthesis of organosilicon polymers on a complex catalyst (C ₂ H ₅) ₂ Al-ClO ₂	152
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). Synthesis of polymers containing polymers	156
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). Synthesis of polymers containing polymers	160
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). The effect of chemical structure on the polymerization activity of the unsaturated organosilicon compounds	167
Radl, E. L., G. F. Eppinger, E. V. Piliavskaya, and V. Zornal (Czechoslovakia). Polymerization of polymers	202

Card 6/9

49

S/661/61/000/006/034/081
D205/D302

AUTHORS: Durgar'yan, S. G., Topchiyev, A. V., Nametkin, N. S.
and Dyankov, S. S.

TITLE: Polymerization of dialkyl diallyl silanes on complex
catalysts triethylaluminum-titanium tetrachloride

SOURCE: Khimiya i prakticheskoye primeneniye kremneorganiches-
kikh soyedineniy; trudy konferentsii. no. 6: Doklady,
diskussii, resheniye. II. Vses. konfer. po khimii i
prakt. prim. kreneorg. soyed., Len., 1958. Leningrad,
Izd-vo AN SSSR, 1961, 162

TEXT: Polymerization of alkenyl silanes requires high pressure or
a temperature not lower than 130 - 150°C. It is known that Ziegler
catalysts permit the polymerization of olefines at 100°C and with-
out pressure. The synthesis of allylic derivatives of silicon is
also rather too complicated and difficult for industrial applica-
tion. Thus the copolymerization of ethylene or propylene with di-
allyl-substitutes of silanes is a problem which awaits a solution. ✓

Card 1/2

Polymerization of dialkyl ...

S/661/61/000/006/034/081
D205/D302

This route will require lower amounts of diallylic derivatives and will, apparently, change the properties of the polymers.

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk
SSSR, Moskva (Institute of Petroleum Chemistry Syn-
thesis, Academy of Sciences, USSR, Moscow)

Card 2/2

S/832/62/000/000/002/015
D244/D307

AUTHORS: Topchiyev, A.V., Nametkin, N.S. and
Durgar'yan, S.G.

TITLE: The addition of hydrogen silanes with mono-
and dialkyl derivatives of silicon

SOURCE: Issledovaniya v oblasti kremniyorganiches-
kikh soyedineniy; sintez i fiziko-khimiches-
kiye svoystva. Sbornik statey. Inst. neftekhim.
sint. AN SSSR. Moscow, Izd-vo AN SSSR, 1962,
28 - 55

TEXT: The authors investigated the combination of
trialkyl (phenyl, chloro-) diallylsilanes and dialkyl (phenyl,
chloro-) diallylsilanes with trichlorosilane, triphenylsilane
and different trialkylsilanes in the presence of benzoyl peroxide,
platinized carbon black (16% by weight of Pt) and chloroplatinic
acid (0.1 N in iso-propyl alcohol). The reactions were conducted
by heating the reactants under normal or increased pressure (auto-
claves), from 45° to 210°C, for 2 - 25 hours. The platinum catalysts
Card 1/3

The addition of hydrogen ...

S/832/62/000/000/002/015
D244/D307

gave generally much higher yields of the products than benzoyl peroxide. Thus, for example, in the presence of H_2PtCl_6 , $SiCl_3H$ combined with trimethyl- and triethylallylsilane, giving 50 % yields, while no reaction took place with benzoyl peroxide. The reaction of triethyl- and tripropyl silanes with triethyl- and tripropylallylsilanes, in the presence of Pt, gave only 20 % yields. Triethyl-, tripropyl- and tributyl-silanes combine with diethyl-, dipropyl- and dibutyl-diallylsilanes forming from 13% to 29% of the addition products with the use of Pt catalysts. Studies of the reaction indicate that the increasing size of the straight chain radicals in the trialkylallyl and dialkylallyl silanes increases the activity of double bonds in the allyl radicals. When alky radicals in alkylallylsilanes are replaced by more electronegative groups (Cl or phenyl) the double bond becomes even more active. Infrared studies of the reaction products showed that the reactions in the presence of Pt catalysts and benzoyl peroxide proceed in opposition to Markovnikov's rule and all the products have the following structure:

Card 2/3

The addition of hydrogen ...

5/832/62/000/000/002/015
D244/D307

$R_3Si-CH_2-CH_2-SiR'_3$ and $R_3Si-CH_2-CH_2-CH_2-\overset{\overset{R}{|}}{\underset{\underset{R}{|}}{Si}}-CH_2-CH_2-CH_2-SiR'_3$
where R and R' = CH_3 , C_2H_5 , C_3H_7 , C_4H_9 , C_6H_5 , Cl. There are
22 figures and 13 tables.

Card 3/3

42655

S/832/62/000/000/009/015
D424/D307

5 3/00

AUTHORS: Nametkin, N.S., Topohiyev, A.V., and
Durgaryan, S.G.

TITLE: Polymerization of allyl derivatives of
silicon with the trialkylaluminum-titan-
ium tetrachloride system

SOURCE: Issledovaniya v oblasti kremniyorgani-
cheskikh soyedineniy; sintez i fiziko-
khimicheskiye svoystva. Sbornik statey.
Inst. neftekhim. sint. AN SSSR. Moscow.
Izd-vo AN SSSR, 1962, 168 - 189

TEXT: A comparative study of the polymerization of
various allyl silanes under the influence of Ziegler-type catalysts
to give polymers containing Si-C bonds. A very extensive review of
previous Russian and Western work in this field (using various
catalysts) is given, with 88 literature references. All the present
experiments were carried out in n-heptane for 8 (or, occasionally, 20)

Card 1/3

Polymerization ...

S/832/62/000/000/009/015
D424/D307

hours at atmospheric pressure, varying the content of monomer in solution, the $AlR_3 : TiCl_4$ ratio ($R = C_2H_5$ or iso - C_4H_9), and the amount of catalyst. The yields of liquid, soluble solid, and insoluble solid polymers, their m.p.'s and Si contents, and, in some cases, their molecular weights, contents of double bonds, and ir spectra are given. The following compounds were polymerized: dimethylphenyl- and methyldiphenylallylsilanes, dimethyl- and methylphenyldiallylsilanes, methyl- and phenyltriallylsilanes and tetraallylsilane. The monoallylsilanes gave only solid polymers melting between 230 and 300°C in a maximum yield of 18%, up to about 50% of them having an isotactic structure. The diallylsilanes gave both liquid and solid polymers with maximum total yields of 85 - 90%. The phenyltriallyl compound gave up to 100% of polymers softening at 400 - 500° , while methyltriallylsilane gave only traces of solid polymer or very small amounts of liquid polymer. Tetraallylsilane gave up to 15 % of insoluble solid polymer decomposing above 350° . The copolymerization of propylene with dimethyl- and methylphenyl allylsilanes was also

Card 2/3

Polymerization ...

S/832/62/000/000/009/015
D424/D307

investigated with a $\text{Al}(\text{C}_2\text{H}_5)_3 / \text{TiCl}_4$ catalyst. The copolymers of propylene with methylphenylallylsilane are distinguished by a relatively high elongation (600 - 700 %). There are 6 figures and 9 tables.

Card 3/3

S/062/62/000/008/016/016
B117/B180

AUTHORS: Topchiyev, A. V., Nametkin, N. S., Ch'iu Hsiao-p'ei,
Durgar'yan, S. G., and Kuz'mina, N. A.

TITLE: Polymerization of monovinyl-alkyl(phenyl) derivatives of
silicon in the presence of ethyl lithium

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh
nauk, no. 8, 1962, 1497-1498

TEXT: The polymerization of trimethyl-vinyl silane and dimethyl-phenyl-
vinyl silane was investigated at 0-50°C with an ethyl lithium catalyst in
n-heptane, the catalyst concentration being 2 - 10% of the quantity of
monomer. For the first time, high-molecular-weight organosilicon
compounds were successfully synthesized from the monomers named in high
yield (80-90%) in the form of white powders. Examples:

✓

Card 1/2

S/062/62/000/008/016/016
B117/B180

Polymerization of monovinyl- ...

Monomer	Catalyst	Temperature	Time	Yield	Molecular weight	m.p.
$(\text{CH}_3)_3\text{SiCH}=\text{CH}_2$	8%	26°C	8	90%	$2 \cdot 10^4$	280-300°C
$(\text{CH}_3)_2\text{C}_6\text{H}_5\text{SiCH}=\text{CH}_2$	8%	25°C	8	85%	$2 \cdot 10^4$	130°C

There is 1 table.

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR
(Institute of Petrochemical Synthesis of the Academy of Sciences USSR)

SUBMITTED: June 29, 1962

Card 2/2

NAMETKIN, N.S., DURGARYAN, S.G.

"Katalytische und strahlenpolymerisation von alkenylsilanen."

Report submitted to the 2nd Dresden Symp. on Organic and Non-Silicate
Silicon Chemistry.

Dresden, East Germany

26-30 March 1963